

## **General Comments**

1. DEQ has two primary objectives for the Arkema new stormwater system which are:
  - Comply with the 2010 DEQ Water Quality Mutual Agreement and Order (MAO).
  - Establish stormwater source control to support the anticipated early sediment action adjacent to the Arkema facility which is overseen by the Environmental Protection Agency.

### MAO Objectives

The purpose of the MAO was to allow for the construction, operation and monitoring of a new stormwater system prior to renewal of the facility National Pollutant Discharge Elimination System (NPDES) permit. Effluent monitoring data will be used by DEQ and Arkema to evaluate the need for system modifications and/or improvements and by DEQ in the permit renewal process. The inclusion of benchmarks or system treatment goals was a topic of considerable negotiation during the negotiation of the MAO. DEQ finally agreed to not include them in the MAO with the understanding that they would be identified in subsequent correspondence and workplans. The purpose of which was to provide a basis for design of the stormwater treatment system and to evaluate system performance and the need for system modifications.

While Table 1-1 Stormwater Treatment System Effluent Levels is presented in the Draft Design report, the document notes that these values were “not part of the design basis for the source control measure”, and that the objective of the source control measure “is a reduction of DDT in stormwater discharges to the Willamette River from the site”. DEQ expects that the Table 1-1 levels will be included as a basis for the final system design, will be used in the evaluation of system performance, and that substantive system modification will be proposed if the Table 1-1 levels are not achieved. Absent these efforts, Arkema should expect that DEQ will move forward with permit renewal after submittal of the initial June monitoring report.

### Stormwater Source Control

The second objective of the new (interim) stormwater system is to prevent recontamination of Willamette River sediment (post EPA early action) adjacent to the Arkema facility. It is DEQ’s expectation that the rerouting of stormwater to the downstream edge of the early action area (yet to be finalized) and the reduction of contaminants to the Table 1-1 levels or close to them will be sufficient to prevent sediment recontamination in early action area. However, this assumption needs to be supported, and DEQ requests that Arkema conduct a sediment recontamination analysis to support this conclusion. DEQ is working with other parties that are currently

conducting recontamination evaluations and can provide more information on the approaches.

2. The final design should be 1) printed double sided, and 2) stamped by an Oregon professional engineer.

### **Specific Comments**

Section 1.2 Selected Source Control Measure, Page 1-2 – The objective of the stormwater source control measure is not limited to the management of DDX (the sum of 2,4' and 4,4' DDT, DDD, and DDE). However, DEQ understands that DDX management is a focus given the widespread presence in site soils, and technologies employed to manage DDX are expected to manage most other site contaminants.

### **Section 3.0 Temporary Capping, Page 3-3**

1. In addition to the surface soils underlying asphalt in the Acid Plant area, DEQ considers the asphalt itself to be a likely DDX source to stormwater. DDX concentrations in Acid Plant area surface soils are very high (commonly in excess of 1,000 mg/Kg). Given this and the pre-removal concentrations in the areas where soil was removed in 2000 and 2001 there is a high likely hood that DDX was tracked onto and imbedded in asphalt surfaces. DEQ requests that Arkema evaluate options to encapsulate, seal or cap the asphalt surfaces in the Acid Plant area and include a recommendation in the final stormwater system design.
2. DEQ also requests that a temporary cap, as proposed for the former DDT manufacturing building foundation and former DDT storage area, be constructed for the former No. 2 warehouse foundation. DDT product was milled and bagged in warehouse No. 2. Consistent with the testing done for the demolition of the former DDT manufacturing building, DDX was also present in the brick walls of the warehouse No. 2, and all demolition debris from the No. 2 warehouse was managed as a DDT containing hazardous waste (U061).

### **Section 5.4.3 Sand Filter, Page 5-9**

1. Based on discussions with Arkema during the MAO negotiations, it was DEQ's expectation that the sand filter would include an activated carbon component consistent with the discussed concept of advanced treatment technology. Please provide a discussion for the basis of the sand filter design that addresses the objective of meeting the Table 1-1 values.
2. Elevations identified in Sheet 14 Detention Basin and Sand Filter Details are not consistent with the elevations referenced in this section and other detail sheets.

Section 6.1 Local Permitting, Page 6-1 – Sebrina Nelson-Deal, (503) 823-5843, at the City of Portland requested that she be contacted to ensure coordination regarding applicable permits for the project.

Section 7 Performance Monitoring, Page 7-1 – See DEQ MAO comments under the General Comments section.

Figures 2-4 DDX Concentrations in Surface Soil (0 ft – Approximately 1 ft bgs) and 2-5 DDX Concentrations in Surface Soil ( ft – Approximately 10 ft bgs) should clarify if soil sample concentrations represent pre or post removal in the IRM soil removal areas.

Figure 5-11 Sand Filter Cross Sections – The water flow path on the figure is not clear. Water distribution at the top of the sand filter using diffusers should be considered to minimize sand erosion.

### **Construction Quality Assurance Plan**

Figure 2-1, Project Organization Chart – Add a box for a DEQ field representative that has lines of communication to either the contractor project manager or the owner’s site representative and the DEQ project manager.

### **Draft Contaminated Material Management Plan**

Section 1 Introduction, Page 1-1 – The last paragraph on this page states that most of the soil and other excavated materials on the site are not considered contaminated. DEQ does not agree with this statement, and considers all site soil and debris contaminated. Certain portions of the site are more contaminated than others (e.g., Acid Plant area).

#### **Section 2.2 Soil Screening, Page 2-1**

1. Second paragraph, first sentence – Strike the word *strong* so that the sentence reads contamination, or odors.
2. Vapor monitoring in the breathing zone is *not* an appropriate method to screen for potentially contaminated soil. Soil vapor screening should be conducted using a headspace test, and the revised plan should provide an updated standard operating procedure for conducting head space tests from previously approved site remedial investigation workplans (e.g., SOP 68 from the Elf Atochem Acid Plant Area Remedial Investigation and Feasibility Study Workplan). Soil from the channels should be screened (head space tests) every truck load or 10 cubic yards whichever is greater. Soil which results in a response above 10 meter units on the organic vapor monitor should be considered potentially contaminated.

3. No details of the organic vapor monitor are provided. Please provide specifications for the monitor and an evaluation of its ability to detect volatile organic substances detected in site soil and groundwater.

### Section 2.3 Soil Handling, Page 2-2

1. Soil spoils from the portion of the east channel crossing the Acid Plant area (i.e., rail track to rail track are likely to be heavily impacted and considered a state only listed hazardous waste. These spoils need to be either:
  - a. Managed off-site at a permitted waste disposal facility consistent with disposal requirements for State of Oregon pesticide residue.
  - b. Managed within the Acid Plant area. Waste piles constructed within the Acid Plant area need to in accordance with 40 CFR 265.250, 265.251, 265.253, and 265.54 (less leachate collection system).
  - c. Managed outside of the Acid Plant area in a DEQ approved location and in waste piles constructed in accordance with 40 CFR 265.250 – 265.251 and 265.253 - 265.260.
2. Soils in the Old Caustic Tank Farm area are impacted by oil and diesel range petroleum in addition to the area of elevated DDX identified on Figure 5-18. Because of the elevated DDX soil in the Old Caustic Tank Farm area, DEQ requires the spoils from this portion of the east channel area to be managed with the Acid Plant area soils as a state only hazardous waste.
3. Soil temporarily staged adjacent to the excavation needs to be covered with plastic sheeting at the end of the work day.

### Section 4 Material Segregation and Stockpiling

1. All soil stockpiles need to be covered at the end of the work day.
2. Stockpile 1, which is to receive any soil exhibiting field indications of contamination, needs to be constructed with a base liner.
3. In the event soil exhibiting field indications of contamination are encountered, DEQ needs to be notified and consulted to confirm that management of the soil in stockpile 1 is appropriate.
4. Section 3.3.4 of the draft design report notes that small aboveground structures on the former DDT manufacturing building foundation will be demolished. Based on the phase II demolition workplan for the facility, it is assumed that this debris contains a U061 hazardous waste. This demolition debris needs to be segregated, and specifics of the

debris management identified in the workplan. DEQ recommends that this debris be managed at an appropriate off-site disposal facility.

## **Air Monitoring Plan**

### **Part B – Air Monitoring for Contaminated Soil Segregation.**

1. As previously noted, specifications of the organic vapor monitor need to be provided to confirm that it can detect volatile organic compounds that have been detected in site soil and groundwater.
2. Monitoring in the breathing zone is not an appropriate method for identifying potentially contaminated soil. See previous comment 2 under Section 2.2 of the draft contaminated material management plan.
3. Air monitoring needs to be done during all excavation activities for health and safety purposes and to screen site soil not just in areas known to be impacted by volatile organic compounds.
4. DEQ considers all site surface and near surface soils to be potentially contaminated with DDX and dioxin/furans, and we do not agree that elevated organic vapor monitor readings suggest the presence of elevated DDX concentrations. The exception to this is if the source of the elevated vapor readings is believed to be chlorobenzene which could be related to DDT manufacturing wastes.

## **Draft Operation and Maintenance Plan**

### **Section 2.2 Cap Maintenance, Page 2-1**

1. The plan should define a significant storm event.
2. Cap inspections should also be conducted after an earthquake.

Section 2.3 Future Work, Page 2-1 – DEQ needs to be notified prior to any work beneath the caps, and the work needs to be done in accordance with a DEQ approved workplan.

### **Section 4 Stormwater Conveyance and Treatment System**

1. This plan or the Contaminated Materials Management Plan need to identify how maintenance materials from the conveyance channels/berms and treatment systems (e.g., sediment, debris and vegetation) will be stored, characterized and managed.
2. Inspections of the conveyance and treatment systems also need to identify and report the use of these systems by wildlife. If DEQ determines that the systems are an attractive nuisance for wildlife (e.g., open water feature) wildlife deterrent measures may be required.

Section 4.2.1 Conveyance System, Page 4-1 – Sheet 15 which illustrates the berm and channel details does not identify the geotextile for the berm construction referenced in Section 4.2.1.

## **Draft Performance Monitoring Plan**

### **Section 1.1 Performance Monitoring Plan Framework, Page 1-1**

1. DEQ requests that samples be collected between the retention basin and sand filter in order to evaluate the performance of the both treatment systems and aid in the selection of adaptive management treatment should it be necessary.
2. See earlier general comments on the system performance objectives.

Section 2 Stormwater Sampling, Page 2-1 - Please provide clarification on how the comparison contaminant concentrations to measured total suspended solids and stormwater system flow rates will help assess sources of contaminants in stormwater.

Section 2.2 Sampling Frequency - Monitoring reports should include flow data.

Section 2.6 Quality Assurance /Quality Control - Consistent with DEQ Cleanup Program Quality Assurance Policy, field quality assurance/quality control samples need to be collected and analyzed for each sampling event with equipment rinse blanks collected daily.

## **Draft Quality Assurance Project Plan**

Section A7.1 Data Quality indicators, Page A-10 (last paragraph) – How does the reference to sediment studied relate to the subject stormwater monitoring program?

Section B4.1 Field Quality Control Samples, Page B-7 - Consistent with DEQ Cleanup Program Quality Assurance Policy, field quality assurance/quality control samples need to be collected and analyzed for each sampling event with equipment rinse blanks collected daily.

Table A6-1 Footnote 1 – See above previous comment on required frequency of field quality assurance/quality control samples.

Table A6-2: The protocol cited for Hexavalent Chromium (EPA 7195) does not appear to be listed in the approved CFR methods (CFR 136). The listed method is EPA 218.6 (SM3500).

Table A6-3:

- The ACGs listed in this table (and also listed in Table 1-1) appear to be from Table 2 of the 6/16/09 DEQ memo from Rob Burkhardt to Matt McClincy. These ACGs are the daily maximum values from Table 2. It should be noted that Table 2 also contained average monthly values.

Table A6-3:

- The ACG values for pH are listed in Table A6-3 as 5.5 – 9.0. The value range given in Table 2 of the DEQ memo is 6.5-8.5.

- An ACG has been included for Arsenic, but no limit was included in Table 2 of the DEQ memo (this is just a point of clarification). DEQ has been working on an updated human health criteria for arsenic which is expected to be lower than the Arkema proposed drinking water MCL.
- The listed DDX ACG (0.05) is appropriate if method 625 is determined to be the appropriate analytic method. If method 608 is used, the ACG should be 0.01.
- The MRLs for some of the listed parameters are higher than the PQLs listed in the DEQ water quality program's November 2007 memo on the subject:
  - The MRL for PAHs is listed as 10, it should be 1
  - The MRL for Pentachlorophenol is listed as 25, it should be 2
- Please provide an updated table that identified the method detection limits and method reporting limits for those compounds for which Columbia Analytical has not completed the method detection limit study.

### **Draft Health and Safety Plan**

1. Section 1.6 Definitions, Page 1-5 – Footnote 2 in this section notes:

“In general, the site does not have areas with exposed hazardous substances. However, when field activities are conducted, there is potential that hazardous substances may be brought to the ground surface and potential contact with hazardous substances could occur.”

As previously noted, DEQ considers all site surface and near surface soils to be potentially contaminated with DDX and dioxin/furans. Other site contaminants of concern may be present as well.

2. DEQ will want to review and approve the proposed layouts work zones (i.e., exclusion zone, contaminate reduction zone and support zone).
3. Contractor staging areas or support zones not located on paved surfaces, may need to be prepped with clean cover.

### **Technical Specifications Draft Design Report Stormwater Source Control Measures**

Table 01450-1 Required Chemical Analytes, Acceptance Criteria, methods and Reporting Limits for Import Materials – The referenced table is for marine sediments and not applicable for a freshwater upland site or terrestrial receptors. The attached December 2010 Oregon Soil/Sediment Clean Fill Screening Table for Terrestrial/Upland Uses should be referenced.

Section 02222 – Decommissioning of Storm Drain System - This work requires a City of Portland plumbing permit or Arkema to work with the City to identify the substantive

requirements of the permit either of which may result in changes to the decommissioning specifications.

Section 3.03 Pipeline Decommissioning - What precautions will be taken to prevent potential releases to the Willamette River during decommissioning of the storm drain pipelines on the river side of the groundwater barrier wall?

Section 3.06 Disposal of Materials

The Contaminated Materials Management Plan does not include test requirements and standards for off-site recycling of concrete debris. DEQ notes that no concrete was taken off-site for recycling during plant demolition.